



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/619,959

07/14/2003

Takuro Sugiura

9281-4604

7799

7590

07/09/2004

Brinks Hofer Gilson & Lione

P.O. Box 10395

Chicago, IL 60610

EXAMINER

PHAM, LONG

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 07/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

127

Office Action Summary	Application No.	Applicant(s)	
	10/619,959	SUGIURA, TAKURO	
	Examiner	Art Unit	
	Long Pham	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>07/14/03</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (AAPA) of this application in combination with Obuchi et al. (US 2003/0059575) or Nakabayashi et al. (US 2002/0021385).

With respect to claims 1, 2, 3, AAPA teaches an illumination device comprising (see figs. 15A-15B and 16 and the Background of the Invention of this application):

a light source 115; and

a light guide plate 112 that receives light from a light source through an end face 112a and that emits the light propagating therein from one surface, wherein the end face of the light guide plate through which the light is received serves as a light incident face, and another surface of the light guide plate is provided with a plurality of prism grooves 114 arranged in stripes in plan view and having gently inclined faces and sharply inclined faces inclined at an inclination angle larger than an inclination angle of the gently inclined faces.

However, AAPA fails to teach that a pitch of the prism grooves decreases away from the light source or the inclination angle of the sharply inclined

faces increases away from the light source or the length of the sharply inclined faces increases away from the light source.

Obuchi et al. teach an illumination device in which a pitch of prism grooves of a surface of a light plate decreases away from a light source to or an inclination angle of a sharply inclined faces increases away from the light source or a length of the sharply inclined faces increases away from the light source achieve uniform emission of reflected light. See [0115] and [0116].

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to incorporate the teaching of Obuchi et al. into the device of AAPA to obtain the above advantages.

Alternatively, Nakabayashi et al. teach an illumination device in which a pitch of prism grooves of a surface of a light plate decreases away from a light source or an inclination angle of a sharply inclined faces increases away from the light source or a length of the sharply inclined faces increases away from the light source to achieve equalization of luminance. See [0038] and [0039].

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to incorporate the teaching of Nakabayashi et al. into the device of AAPA to obtain the above advantages.

With respect to claim 4, since AAPA in combination with Obuchi et al. or Nakabayashi et al. teach the claimed device, the θ_2 coefficient of the light guide plate would inherently increase away from the light source.

With respect to claims 5 to 8, process limitations are not given patentability weight in a claim drawn to a device or structure.

With respect to claims 9, 10, and 11, AAPA in combination with Obuchi et al. or Nakabayashi et al. fail to teach the ranges for the θ_2 coefficient of the light guide plate, the inclination angle θ_1 of the gently inclined faces and the inclination angle θ_2 of the sharply inclined faces of the prism grooves, and the angle between the prism grooves and light incident face of the light guide.

However, it would have been obvious to one of ordinary skill in the art of making semiconductor devices to determine the workable or optimal values or ranges for the θ_2 coefficient of the light guide plate, the inclination angle θ_1 of the gently inclined faces and the inclination angle θ_2 of the sharply inclined faces of the prism grooves, and the angle between the prism grooves and light incident face of the light guide through routine experimentation and optimization to obtain optimal or desired device performance because these are result-effective variables and there is no evidence indicating that they are critical or produce any unexpected results and it has been held that it is not inventive to discover the optimum or workable ranges of a result-effective variable within given prior art conditions by routine experimentation. See MPEP 2144.05.

3. Claims 12, 13, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (AAPA) of this application in combination with Obuchi et al. (US 2003/0059575) or Nakabayashi et al. (US 2002/0021385).

With respect to claims 12, 13, and 14, AAPA teaches a liquid display device comprising (see figs. 15A-15B and 16 and the Background of the Invention of this application):

an illumination device; and

a liquid crystal display unit 120 to be illuminated by illumination device, wherein the illumination device comprises:

a light source 115; and

a light guide plate 112 that receives light from a light source through an end face 112a and that emits the light propagating therein from one surface, wherein the end face of the light guide plate through which the light is

received serves as a light incident face, and another surface of the light guide plate is provided with a plurality of prism grooves 114 arranged in stripes in plan view and having gently inclined faces and sharply inclined faces inclined at an inclination angle larger than an inclination angle of the gently inclined faces.

However, AAPA fails to teach that a pitch of the prism grooves decreases away from the light source or the inclination angle of the sharply inclined faces increases away from the light source or the length of the sharply inclined faces increases away from the light source.

Obuchi et al. teach an illumination device in which a pitch of prism grooves of a surface of a light plate decreases away from a light source to or an inclination angle of a sharply inclined faces increases away from the light source or a length of the sharply inclined faces increases away from the light source achieve uniform emission of reflected light. See [0115] and [0116].

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to incorporate the teaching of Obuchi et al. into the device of AAPA to obtain the above advantages.

Alternatively, Nakabayashi et al. teach an illumination device in which a pitch of prism grooves of a surface of a light plate decreases away from a light source or an inclination angle of a sharply inclined faces increases away from the light source or a length of the sharply inclined faces increases away from the light source to achieve equalization of luminance. See [0038] and [0039].

It would have been obvious to one of ordinary skill in the art of making semiconductor devices to incorporate the teaching of Nakabayashi et al. into the device of AAPA to obtain the above advantages.

With respect to claim 15, since AAPA in combination with Obuchi et al. or Nakabayashi et al. teach the claimed device, the θ_2 coefficient of the light guide plate would inherently increase away from the light source.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on M-F, 7:30AM-3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Long Pham
Primary Examiner
Art Unit 2814

LP